IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: David E. Green et al.

Serial Number: 09/586,381

Filed: June 2, 2000

For: **YARNS AND FABRICS HAVING A WASH-DURABLE NON-ELECTRICALLY CONDUCTIVE TOPICALLY APPLIED METAL-BASED FINISH**

Group Art Unit: 1771
Examiner: A. Wachtel

DECLARATION UNDER 37 C.F.R. § 1.132

Box Non-Fee Amendment
Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

I, David E. Green, declare the following:

1. I received a Bachelor of Science degree in chemistry from Washington and Lee University, in 1985.

2. For the last sixteen (16) years I have been employed by Milliken & Company located in Spartanburg, South Carolina.

3. My experience in the textile and chemical industry has been devoted to the research, design, and processing of additives for application to and/or on textile products. My current position with Milliken & Company is as a Development Chemist with Milliken Chemical Division.

4. For the last ten (9) years with Milliken & Company, my work has primarily focused on the development of finishes and coatings, such as antimicrobial finishes and lubricant coatings, for fibers and fabrics.

5. I am familiar with the above-referenced patent application as Applicant as well as U.S. Pat. No. 5,849,311. It is clear that the claims of the above-referenced application require a certain level of wash durability such that the resultant amount of metal-based finish remaining on the target fiber and/or fabric substrate must measure at least 50% by weight of the initial finish applied thereto. It is also clear that the '311 Patent does not require nor discuss such a level of wash durability and only makes passing reference to any fiber or fabric substrates.

6. I have undertaken some comparative experiments to determine the possible extent of metal-based finish retention on a fabric substrate treated by the preferred embodiments of the '311 Patent versus the levels of retention exhibited and required by the claimed invention (see the attached Comparison Examples). Such data shows that the '311 Patent treatments retain at most 25% of the particular finish after 10 standard washes (in accordance with AATCC Test Method 130-1981) and that the claimed invention exhibits much higher levels of finish retention.

7. Thus, in my opinion, the specific teachings of the '311 Patent do not accord a wash-durable finish that meets the same level as now required within the pending claims. Hence, in my opinion, such a comparison shows the lack of anticipation of my claimed invention by the '311 Patent's teachings and is also relevant relevancy as indicia of nonobviousness of my invention, if necessary.

8. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced application or any patent issuing thereon.

David E. Green

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Comparison Examples

Method Followed and Formulations Produced:

The wash durability of separate metal-finished fabric samples, treated through different procedures of applying specific metal salts, was measured to determine the amount of retained metal finishes on target fabric substrates of the same type (weave, thread count, etc.). The samples were polyester plain woven fabrics, and the comparative metal finishes were silver iodide (with potassium iodide).

The procedure of metal finish application followed the method (as best possible) described in Example 3 of the '311 Patent, but as applied to the fabrics as noted above. First two precursor solutions were prepared as described at col. 14 of the '311 Patent. A sample of Reputex 20 (20% polyhexamethylenebiguanide, aka PHMB, in water), was first distilled (to remove water) and diluted with ethanol in the same proportion as example 1A of the '311 Patent, yielding 468 ml. A sample of BMDGA (n,n-bismethylenediglycidylaniline, from Aldrich) was then diluted in ethanol and acetonitrile in the same proportions as in example 1A. The two solutions were then combined in a closed vessel and heated at 95°C for two hours to make the adduct solution, which was then cooled and filtered.

Four samples each of textured plain woven fabrics (approximately 8 inches by 8 inches in dimension) were then immersed in the adduct solution and dried as in example 3 to an add-on level of 15%. The samples were then dried and cross-linked for 2 hours at 120°C in a lab oven, rinsed in acidified water (pH lowered to 2.35 with nitric acid), then rinsed

in water and dried for 10 minutes at 200°F. One sample of the fabric was removed and not treated further; the other was then further treated as noted below:

The remaining sample was then immersed for two minutes in a .05% solution of AgI/KI, then rinsed in ethanol, then in water, and then dried for 30 minutes at 70°C.

Pieces of the samples were then cut for AATCC 130-1981 home wash testing, which gave us the following samples for each of the two fabric styles for antimicrobial testing:

A) control (untreated fabric)

B) polymer-treated but no silver (not washed)

C) full treatment with silver (not washed)

D) full treatment with silver (10-wash)

E) full treament with silver (10 wash).

Thus, the last two samples were then subjected to the washing procedures and then all of the samples were analyzed for silver content thereon via 2ICP (Inductively Coupled Plasma) analysis for silver. The results were as follows:

Fabric Samples	Ag Amount via 2ICP Testing	% Ag Retained
A	-------	----------
B	-------	----------
C	3.69	----------
D	1.57	~42%
E	0.25	~6.8%

Thus, the amount retained, as well as the average of the two tested wash treatments (about 25%), measured well below the currently claimed level of 50% retention.

In furtherance of the Declaration to which this page is attached, I, David E. Green, do solemnly attest to the fact that I performed the above experiments.

Date: May 20, 2002

David E. Green